Magnavox TV Repair Kit
TV-KIT-001 & TV-KIT-002
Repair Instructions

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Overview

This guide will help you repair your Philips Magnavox TV if it has the following problem.

TV image shrinks and expands after power on.

Or

TV Powers on but you have no sound or video

Please read this guide completely at least once before you attempt to fix your TV

This kit is known to work on Magnavox TV sets with the following Chasis and model numbers.

Chasis # PTV800, PTV805, PTV810, PTV811, PTV815, PTV820, PTV825, PTV835, PTV836, PTV840, PTV841, PTV842, PTV843, PTV844, PTV847, PTV853

Model #

50YP43C101,50YP43C102,50YP44C101,50YP44C102,50YP44C103,50YP44C104,55P9161001,55P9161002,55P9161003,55P9161004,55P9271001,55P9271002,55P9271003, 55P9271004, 55P9271005, 55YP43C101, 55YP43C102, 55YP43C103, 55YP43C104, 55YP44C101, 55YP44C102, 55YP44C103, 55YP44C104, 55YP45C, 60P9161001, 60P9161002, 60P9161003, 60P9161004, 60P9271001, 60P9271002, 60P9271003, 60P9271004, 60P9271005, 60YP43C101, 60YP43C102, 60YP43C103, 60YP43C104, 64P9161001, 64P9161002, 64P9161003, 64P9161004,

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I. DISCLAIMER

The procedures described in this document require access to potentially dangerous voltages, proximity to the CRT and its implosion risk, and other possible dangers lurking inside a television set. Furthermore, while your symptoms may fit those described below, there is no guarantee that this kit will fix your problem. The actual cause could be elsewhere. We will not be responsible for personal injury resulting from attempting these repairs nor damage to the equipment that may result from lack of soldering experience or inadequate de-soldering or soldering equipment.

Instructions

Remove Power & Cables

Several days before attempting the repair you should unplug all power cables, video cables, etc from the back of the TV set. This will give the set a chance to discharge any voltages that may be stored in the CRT, capacitors, etc. With that said a TV can hold a charge for a very long time after being unplugged. At all times you should avoid getting close to or touching the CRT tube(s) or Flyback, or any other high voltage wires(large red wire) in the set.
Please review the safety section at the bottom the guide for more information.

Unscrew TV Cover

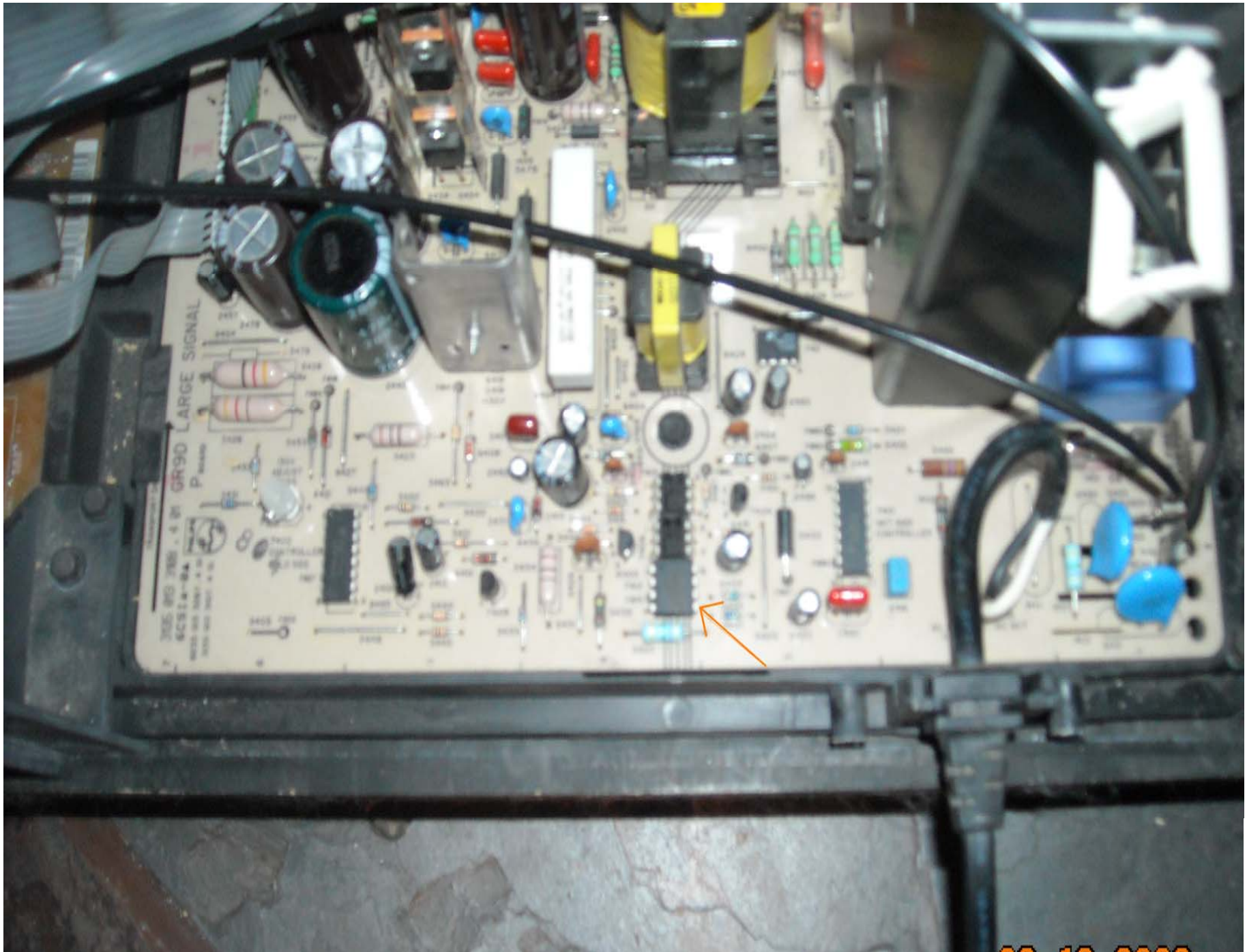
Remove all screws on the back of the TV cover.

Locate Circuit Board & Chip

The faulty chip is located on the main power supply board. The chip is known as an “OPTO ISOLATOR” or “OPTO COUPLER” chip. It will be a small 8 pin IC chip located typically near where the power cord mounts to the circuit board. On the chip you will see the following printed in white ink - CNW136 or HCNW136. You may also see other numbers on the chip. Take a look at the photos to get a better idea of what the chip looks like. Note: The exact location of the chip may be different on your model as compared to the photos. Just locate the 8 pin chip that has the letters CNW136 or HCNW136 on it. This is the chip you will need to replace.

On TV sets with Chasis # PTV800, PTV805, PTV810, PTV811, PTV815, PTV820, PTV825 the schematics show that the circuit board location is IC405. Again, all you need to do is locate the chip with CNW136 printed on top.

On TV sets with Chasis #PTV835, PTV836, PTV840, PTV841, PTV842, PTV843, PTV844, PTV847, PTV853 the schematics show that the circuit board location is 7412. Again, all you need to do is locate the chip with CNW136 printed on top.


GR90 LARGE SIGNAL

Loosen Circuit Board

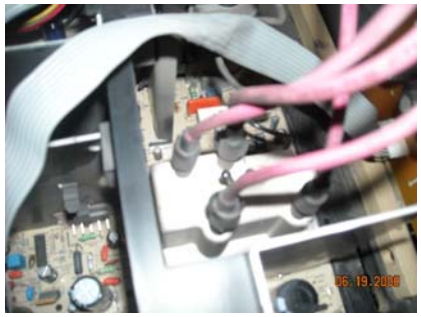
In order to replace the chip you will need to loosen the circuit board where it is located. The goal here is to remove enough screws and wires so that we can get to the chip.

1. Remove all the screws that are securing the circuit board and plastic circuit board holder.
   Note: Some screws may be located in the center of the board

Remove wires, cables, etc that are in the way. Note: You should not have to remove any wires towards the front of the board(closest to the screen). Basicly remove only enough cables to tilt the board up so that you can get to the bottom of the board. Make sure you mark all cables as they are removed. Some of the cables may have numbers on them that match their location on the board.

Note: You should not have to remove the red flyback wires or any other wires towards the back of the board. You only need to remove enough wires/connectors to lift the board up.

The flyback, crt, and high voltage wires(large red ones pictured below) can store high voltages and produce shocks even after being unplugged for several days. Avoid these areas. If you must remove the high voltage wires you need to discharge the voltage first. Please review the safety precaution section at the end of this document for more details.



2. The board will slide free once all the screws are removed. If it does not budge look for more screws.

Pop Circuit board up or out

Now that the board is free of screws and most of the wire connections you will need to position it so that you can get to the bottom of the board with your soldering iron and de-soldering tools. On some sets you may need to pop the plastic clips on the side of the holder to free the board.

Desolder Old Chip

You now need to de-solder and remove the old chip. If you are not sure how to de-solder please review the de-soldering tips and links below. You may also want to practice soldering and de-

soldering on an old piece of electronics such as a radio, remote control, etc. Or you can purchase a circuit board and a couple of IC chips from radio shack to practice with.

Make sure you note the orientation of the chip. On the top of the chip there will be a small dimple or notch. Make sure that the new chip goes back the same direction. Take a look at the chip below as an example.

Install DIP Socket

This is an optional step but I would suggest doing it for the following reasons.

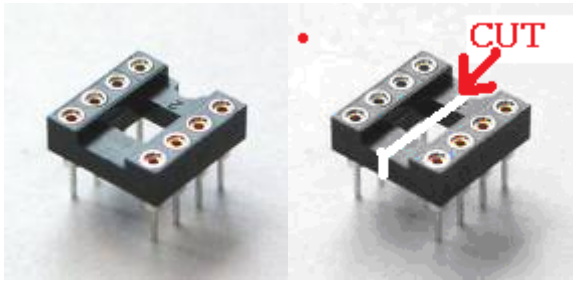
1. IC chips can get damaged if they are heated up too much during the soldering process. If you use a DIP socket the IC chip will not get damaged.
2. If you accidently put the chip in backwards you can always pop it out and turn it around. If it was soldered you would have to desolder/resolder it which can damage the chip.
3. If the chip ever fails again all you need to do is pop the old one out and pop in a new one.

Put the DIP switch into the holes in the circuit board where you removed the old chip.

Using your soldering iron solder the DIP socket into the circuit board. You will have to apply the solder to the underneath of circuit board.

Note: The pins are very close to each other. Make sure that you only solder one pin at a time and that the solder does not run beween pins. See the soldering tips and links below to see what a good/bad connection looks like.

Note #2: The IC chip is a bit wider than a standard 8 pin DIP sockets. To solve this problem you should cut the DIP socket in half as shown below. If you ordered a chip kit we will do this for you.



Install New Chip

Now that your dip socket is installed you will need to pop in the new chip.

1. Carefully insert the new chip into the DIP socket
2. Make sure you put it back in the correct direction.
3. Make sure all the pins are lined up with the socket then push down firmly with your thumb.

Note: Many ICs are static sensitive. Leave ICs in their antistatic packaging until you need them.

Reassemble TV Set

Reverse the process you used to take your tv apart.

1. Make sure you put all your cables back – double check twice to make sure. All the cables should have a number that matches their location on the circuit board.
2. Make sure you put back the screws (You can do this last after you test the TV)
3. Don’t force anything. If it is stuck there is a reason.

Test TV Set

Reconnect the power, cable tv/dish connections, av cables, etc

Power on the TV.

If you followed these instructions correctly your TV should now be working.

Desoldering Tips

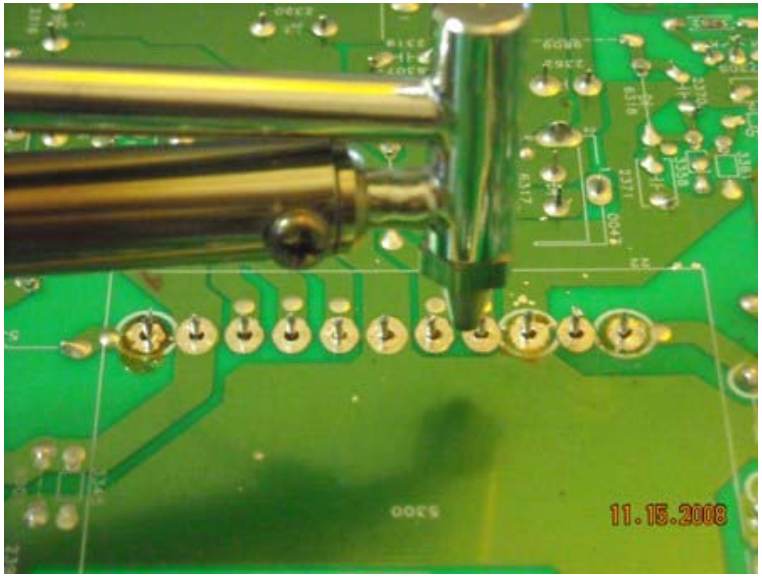
If you have never soldered or de-soldered I would suggest you practice on a circuit board from an old piece of electronics. The IC chip connections are extremely close to each other. Its very important that you remove all the solder between the holes so that there are no shorts.

Note: We highly recommend using a desoldering iron like the one shown below. You can purchase one from Radio Shack for under fifteen dollars.

Using the desoldering iron slowly remove the solder from the pins on the convergence chips and convergence resistors as follows

1. Plug the desoldering pump in...Let it warm up.

2. Position the circuit board so that you can get to the items that need to be desoldered.
3. Press the pump bulb - and hold it in.
4. Place it on the 1st pin to be desoldered - when the solder melts release the pump bulb.
5. The solder will get sucked into the desolderng iron.
6. Place the pump over a piece of paper and press the pump bulb to blow out the solder onto the paper.
7. Repeat the steps above



Great Links – I would suggest visiting these sites if you don't have a lot of experience with soldering/de-soldering.

http://tangentsoft.net/elec/movies/ (Videos and articles)

http://www.epemag.com/solderfaq/desold.htm

http://www.mediacollege.com/misc/solder/

De-soldering Using A solder wick instead

- Apply both the end of the wick and the tip of your soldering iron to the joint.
- As the solder melts most of it will flow onto the wick, away from the joint.
- Remove the wick first, then the soldering iron.
- Cut off and discard the end of the wick coated with solder.

After removing most of the solder from the joint(s) you may be able to remove the wire or component lead straight away (allow a few seconds for it to cool). If the joint will not come apart easily apply your soldering iron to melt the remaining traces of solder at the same time as pulling the joint apart, taking care to avoid burning yourself.

Soldering Tips

Great Links – I would suggest visiting these sites if you don't have a lot of experience with soldering/de-soldering.

http://tangentsoft.net/elec/movies/ (Videos)

http://www.epemag.com/solderfaq/desold.htm

http://www.mediacollege.com/misc/solder/

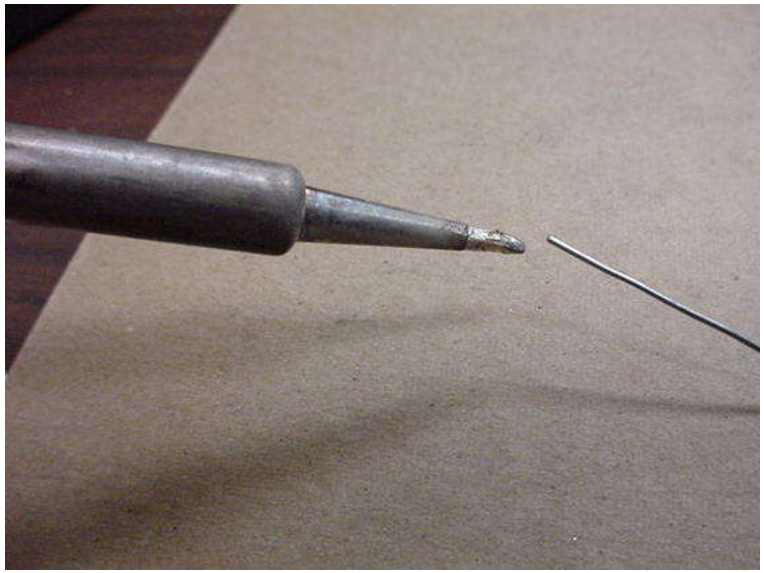
Safety precautions:

- Never touch the element or tip of the soldering iron.
- They are very hot (about 400°C) and will give you a nasty burn.
- Take great care to avoid touching the mains flex with the tip of the iron.

- The iron should have a heatproof flex for extra protection. An ordinary plastic flex will melt immediately if touched by a hot iron and there is a serious risk of burns and electric shock.
- Always return the soldering iron to its stand when not in use.
- Never put it down on your workbench, even for a moment!
- Work in a well-ventilated area.
- The smoke formed as you melt solder is mostly from the flux and quite irritating. Avoid breathing it by keeping you head to the side of, not above, your work.
- Wash your hands after using solder.

Preparing the soldering iron:

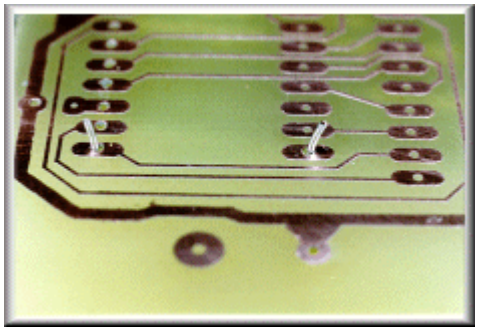
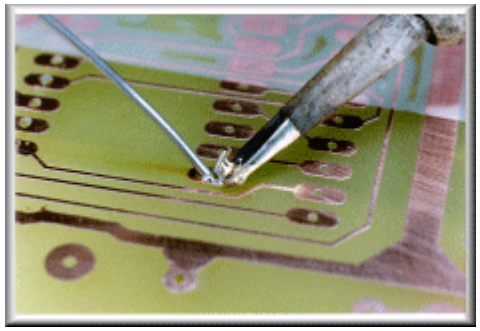
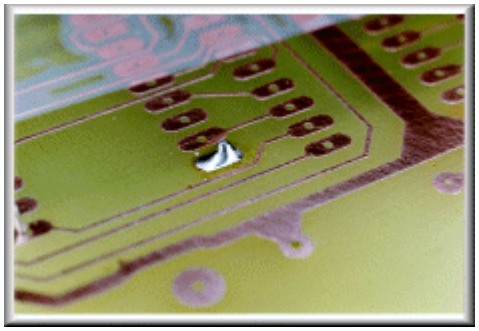
- Place the soldering iron in its stand and plug in.
- The iron will take a few minutes to reach its operating temperature of about 400°C.
- Dampen the sponge in the stand.
- The best way to do this is to lift it out the stand and hold it under a cold tap for a moment, then squeeze to remove excess water. It should be damp, not dripping wet.
- Wait a few minutes for the soldering iron to warm up.
- You can check if it is ready by trying to melt a little solder on the tip.
- Wipe the tip of the iron on the damp sponge.
- This will clean the tip.
- Melt a little solder on the tip of the iron.
- This is called 'tinning' and it will help the heat to flow from the iron's tip to the joint. It only needs to be done when you plug in the iron, and occasionally while soldering if you need to wipe the tip clean on the sponge.



You are now ready to start soldering:

- Hold the soldering iron like a pen, near the base of the handle.
- Imagine you are going to write your name! Remember to never touch the hot element or tip.
- Touch the soldering iron onto the joint to be made.
- Make sure it touches both the component lead and the track. Hold the tip there for a few seconds and...
- Feed a little solder onto the joint.
- It should flow smoothly onto the lead and track to form a volcano. Apply the solder to the joint, not the iron.
- Remove the solder, then the iron, while keeping the joint still.
- Allow the joint a few seconds to cool before you move the circuit board.

- Inspect the joint closely.
- It should look shiny and have a 'volcano' shape. If not, you will need to reheat it and feed in a little more solder. This time ensure that both the lead and track are heated fully before applying solder.

Troubleshooting Tips

1. Make sure the chip is in the correct direction

2. Make sure you soldered all 8 pins correctly

3. Make sure you did not accidently solder two pins together. All solder locations should not touch any adjacent ones.

4. Make sure all your AV cables are plugged in correctly.

User Manuals

You can download your TV user manuals using the following links. The manuals are in subfolders and are listed according to your model number.

Example: If your model number is “9p5511c” – Click on the “9” folder. In this folder you will find your manual along will all the other models that start with 9.

http://www.p4c.philips.com/files/

Note: If you did not get the download link for your factory service manual send us an email.

II. Safety Instructions

If you do not feel comfortable performing these repairs, or feel you are not qualified to perform these repairs in a safe manner, please do not risk trying to do so. Seek the assistance of a qualified service technician.

General Service Precautions - Do's and Don'ts.

Always unplug TV’s AC power cord from the wall before:
Removing or reinstalling any component, printed circuit board, module, or a plug connection.

Disconnecting or reconnecting any test equipment leads.

Connecting a substitute part in parallel with a suspected bad part.

Discharging the picture Tube 2nd Anode lead(s)

Never use a heat sink as a ground connection for your test equipment. You should find the proper chassis ground for this.

Picture Tube Discharge

If you are working on a CRT type projection TV set, you have three picture tubes that should be discharged to prevent accidental shock. You can discharge the picture tube's anode at any of the R, G, or B outputs on the High Voltage distribution block only by:

First connecting one end of an insulated clip lead to the ground on the back of the picture tube, or the mounting plate of the picture tube. Then touch the other end of the insulated clip lead to the wire coming out of the High voltage distribution block, or by using a long handled screwdriver, with the clip lead attached and slid up underneath the rubber boot on the picture tube High Voltage connection.

All TV sets that have a picture tube will have a high voltage transformer with a heavy red wire that runs up and connects to the picture tube with a suction cup. Under there is an average of 32,000 volts when the sets on. Even when the set is off, it can hold a large electrical charge. If it zaps or bites you, it can make a grown man cry, and not only that, can stop your heart! Therefore, the point is to never ever stick a screwdriver under the HV cap even if it is unplugged.

If the cap has to be removed, attach one end of a clip lead to the metal exposed strap that is around the picture tube, and the other end to the screwdriver. Without the metal blade of the screwdriver being exposed to you, slide the screwdriver under the cap slowly. There should be a little pop if there is any voltage left. Wait for a second or two, remove the screwdriver, and pinch the top of the cap perpendicular to the wire while pulling up on it. Never pull on the wire. With the cap off, clip the clip lead to the anode connection on the tube while the other end stays on the grounding strap. You can watch a youtube video here on how this is done.
http://www.youtube.com/watch?v=WX43sT0hMJk

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